表紙ほか

ISSN 0003-9152

ARCHIV
Für
Japanische Chirurgie

Bd. 51 Nr. 1 Jan. 1, 1982

日本外科宝函

第 51 巻　第 1 号

昭和57年1月1日発行

CHIRURGISCHE UNIVERSITAETSKLINIK
KYOTO JAPAN

(Arch Jpn Chir)　京都大学医学部外科整形外科学教室内　(日 外 宝)

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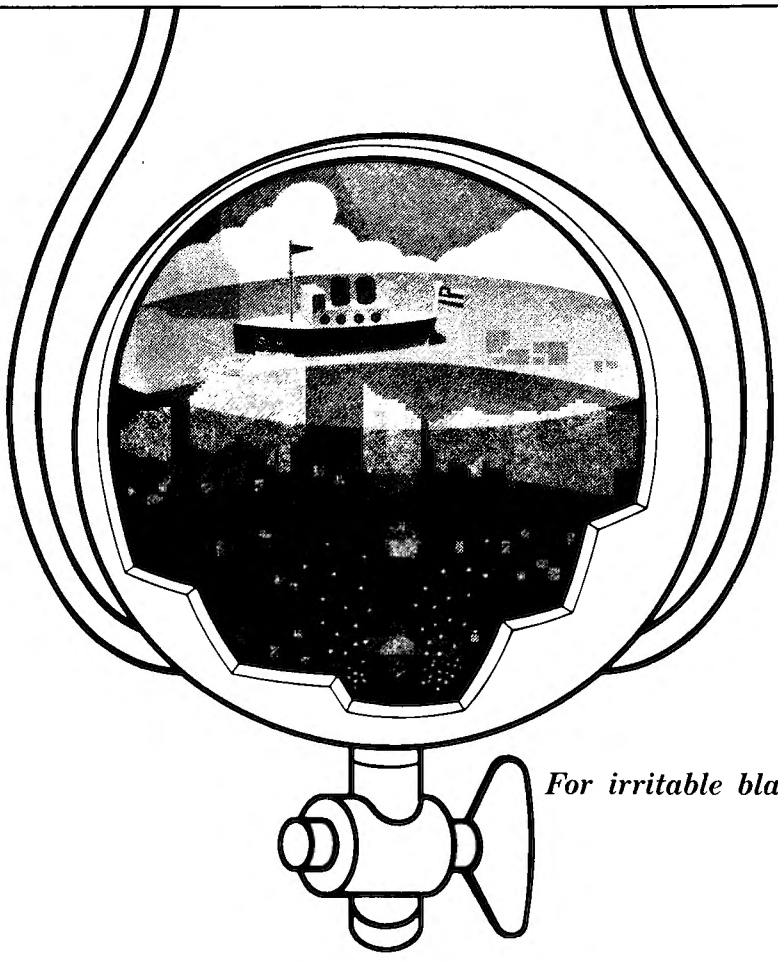

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日本外科宝函編集室宛
℡ (075) 751-3659

昭和56年12月20日印刷
昭和57年1月1日発行

編集兼発行者　京都市左京区聖護院川原町54　戸部隆吉
印刷者　京都市上京区下立売通小川東入　中西亨
印刷所　京都市上京区下立売通小川東入　中西印刷株式会社

発行所　京都大学医学部外科整形外科学教室　日本外科宝函編集室
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（振替口座 京都 4-3691）

日本外科宝函購読・投稿規定（昭. 55. 3. 改正）

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日本外科宝函編集室宛
℡ (075) 751-3659

昭和57年2月20日印刷
昭和57年3月1日発行

編集兼発行者　京都市左京区聖護院川原町54　戸部隆吉
印刷者　京都市上京区下立売通小川東入　中西亨
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昭和57年4月20日印刷
昭和57年5月1日発行

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昭和57年8月20日印刷
昭和57年9月1日発行

編集兼発行者　京都市左京区聖護院川原町54　戸部隆吉
印刷者　京都市上京区下立売通小川東入　中西亨
印刷所　京都市上京区下立売通小川東入　中西印刷株式会社

発行所　京都大学医学部外科整形外科学教室
日本外科宝函編集室
代表者　戸部隆吉
（振替口座 京都 4-3691）

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1) Faris TD, Dkihans AJ, et al: Radioisotope scanning in auxiliary liver transplantation. Surg Gyn Obst **123**: 1261-1273, 1966.

2) 三宅　儀：副腎皮質ホルモンの測定と臨床．最新医学 **6**：769-782，昭26.

3) Sissons HA: The growth of bone. *In* The Biochemistory and Physiology of Bone edited by Bourne. GH, New York, Academic Press Inc 1956, p. 72.

4) 所　安夫：脳腫瘍．東京，医学書院，昭34.

5) Wolf S and Wolf HG: Human Gastic Function, London, Oxford University Press, 1943.

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日本外科宝函編集室宛
℡ (075) 751-3659

昭和57年10月20日印刷
昭和57年11月1日発行

編集兼発行者　京都市左京区聖護院川原町54　戸部隆吉
印刷者　京都市上京区下立売通小川東入　中西亨
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発行所　京都大学医学部外科整形外科学教室　日本外科宝函編集室
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1

Histochemical Elucidation of Hamster Pancreatic Carcinogenesis Induced by N-nitroso-bis (2-hydroxypropyl) amine

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YOSHIHIRO HAMASHIMA

The 2nd Department of Pathology, Faculty of Medicine, Kyoto University (Director: Prof. Dr. YOSHIHIRO HAMASHIMA)

Arch Jpn Chir **51**: 3～13, 1982.

Hamster pancreatic carcinogenesis induced by N-nitroso-bis (2-hydroxypropyl) amine was observed pathologically and histopathologically. Five weeks later, hyperplasia of intralobular ductules, interlobular ductules and main pancreatic ducts, intrainsular glandular structures and small adenocarcinomas appeared. Twenty-one weeks later, hypertrophic epithelial multiplication increased. After 22 weeks, adenocarcinomas appeared. Macroscopical tumor nodules were also seen. Histochemically, the distribution and intensity of alkaline phosphatase, succinate dehydrogenase, lactate dehydrogenase, glucose-6-phosphate dehydrogenase and NADH tetrazolium reductase in normal pancreases and adenocarcinomas were clarified. The difference of ^{3}H-thymidine uptake among every tissue component of normal pancreases, lesions appeared in DHPN administered pancreases and adenocarcinomas were calculated by autoradiography.

京都大学医学部外科学教室第1講座　宮崎一之，高三秀成
京都大学医学部病理学教室第2講座　浜島義博

2

Analysis of Conjugated Bile Acids in Bile by High-pressure Liquid Chromatography II. Clinical Application in Bile of Patiens with Gallstones

KEISUKE MARUYAMA

The 2nd Department of Surgery, Faculty of Medicine, Kyoto University (Director: Prof. Dr. YORINORI HIKASA), Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 14～43, 1982.

1) Biliary lipid concentrations were found to be low in patients with gallstones.

2) The absolute concentrations of taurocholic, tauro- chenodeoxycholic, glycocholic, glycochenodeoxycholic and glycodeoxycholic acids were low in patients with gallstones other than black stones.

3) Oral administration of chenodeoxycholic acid, 400mg per day, and ursodeoxycholic acid, 600mg per day, lowered the lithogenic index. Increased amounts of tauro- and glycochenodeoxycholic acids and decreased amounts of tauro- and glycocholic acids were found after chenodeoxycholic acid administration. Increased amounts of glycoursodeoxycholic acid with marked elevation of the G/T ratio were found after ursodeoxycholic acid administration.

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3

Hemodynamic Stress and Developmental Mechanism in Experimental Cerebral Aneurysms in Rats

IZUMI NAGATA

Deparment of Neurosurgery, Kyoto University Medical School (Director: Prof. Dr. HAJIME HANDA), Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 44～58, 1982.

Cerebral aneurysms were induced in rats treated with unilateral ligation of the common carotid artery with or without hypertension produced by renal infarction. These aneurysms and early aneurysms were investigated by light microscopy and by scanning electron microscopy. Acid phosphatase activity of the induced aneurysms was also histochemically studied. Hypertension, aging, changes of flow pattern in the circle of Willis, and axial flow impingement at the apex were the hemodynamic stresses participating in the development of experimental cerebral aneurysms in rats. The role of endothelial cells and leukocytes in aneurysmal development was also discussed.

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4

Induction of Anti-tumor Cell-mediated Immunity by Local Irradiation Against Transplanted Brain Tumor

KINYA SUDA

Deparment of Neurosurgery, Kyoto University Medical School (Director: Prof. Dr. HAJIME HANDA), Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 59～69, 1982.

Effects of the radiotherapy on the inducation of killer cell activity in mice with intracerebrally implanted glioma (methylcholanthrene induced tumor) were studied. During sucessful radiotherapy, the killer activity against glioma gradually increased in association with the tumor regression. This killer activity was markedly diminished by the treatment of anti-Thyl. 2, and enhanced by Con A stimulation. It was also found that the natural killer activity was enhanced after the irradiation of glioma. These results indicated that the cytotoxic T cells and the natural killer cells induced by the radiotherapy may play, in part, an important role on the regression of brain tumor.

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5

The Regional Differences of Catecholamjnergic Neuron Systems in Experimental Hydrocephalus of Rabbits

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Arch Jpn Chir **51**: 70～78, 1982.

Contents of noradrenaline (NA), dopamine (DA) and their metabolites were determined in seven brain regions of rabbits with kaolin-induced hydrocephalus (2 days, 1 week and 4 weeks after intracisternal kaolin injection) and the following results were obtained.

1) NA contents decreased 2 days after kaolin injection in cerebellum, hypothalamus and pons+medulla. DA contents were unchanged in all brain regions.

2) Contents of 3-methoxy-4-hydroxyphenylethyleneglycol sulfate, the major NA metabolite, were elevated in all brain regions through the cource of hydrocephalus formation.

3) Contents of homovanillic acid, the major DA metabolite, decreased in cerebral cortex and caudate nucleus, but increased in cerebellum, hypothalamus, midbrain and pons+medulla.

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6

Mechanical Property of Canine Basilar Artery in Experimental Subarachnoid Hemorrhage

YOSHITO NARUO

Department of Neurosurgery, Kyoto University Medical School (Director: Prof. Dr. HAJIME HANDA), Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 79～92, 1982.

Mechanical properties and connective tissue compositions of canine basilar arteries subjected to experimental subarachnoid hemorrhage (SAH) were studied in vitro. Under the relaxed condition of smooth muscle in saline solution, no dimensional changes of the arterial walls is found between the control and SAH groups, which suggests that luminal narrowing in the cerebral vasospasm results from a reversible smooth musle contraction. Distensibility of the arterial wall subjected to SAH increases, accompanying with the decrease of collagen to elastin content ratio. Both isometric and isobaric contraction of smooth muscle increase chronologically, having maximum values 7 days after SAH.

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7

Experimental Study of Cerebral Vasospasm —Biochemical Analysis of Vasoconstrictor in the Red Blood Cell Hemolysate and the Mechanism of Action—

SHINICHIRO OKAMOTO

Deparment of Neurosurgery, Kyoto University Medical School (Director: Prof. Dr. HAJIME HANADA), Sakyo-ku Kyoto, Japan.

Arch Jpn Chir **51**: 93～103, 1982.

Biochemical analysis of red blood cell hemolysate revealed that oxyhemoglobin has an important role in the vasconstrictor action of hemolysate. It was also revealed by a pharmacological analysis that intrinsic vasoconstrictor prostaglandins are involved in the constriction of basilar arteries induced by hemolysate.

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8

Experimental Studies of Nonsuture microvascular Anastomosis Using a Soluble PVA Tube and Plastic Adhesive

SEN YAMAGATA

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Arch Jpn Chir **51**: 104～117, 1982.

A new nonsuture method of microvascular anastomosis was introduced using a soluble tube made of polyvinyl alcohol as an internal stent and plastic adhesive. Straight tubes with bilayered wall were made for end-to-end anastomosis and T-shaped tubes with three-layered wall for end-to-side anastomosis. Anastomoses were easily performed and good patency rates were obtained in both anastomoses. Although anastomotic aneurysm was developed in end-to-side anastomosis, it was prevented by reinforcing the anasomotic site with plastic adhesive.

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9

Post-Operative Clinical and Radiographical Study on the Partial Vertebrectomy and Fusion of the Cervical Spine

KOJIRO IKEHATA

Department of Orthopaedic Surgery, Yamaguchi University School of Medicine (Director: Prof. Dr. SUSUMU HATTORI), Ube, Yamaguchi, Japan.

Arch Jpn Chir **51**: 118～143, 1982.

A follow-up study of 50 cases which had been treated with the partial vertebrectomy and fusion for cervical spine was carried out clinically and radiogcaphically.

In the cases of severe osteochondrotic myelopathy, more satisfactory clinical results were oftained by this method than by other anterior techniques. It took longer time in multilevel fusion than in single level fusion to get solid union between the grafted bone and the vertebral bodies. Instability which developed at the adjacent intervertebral discs had less influence on the postoperative results. There was generally a satisfactory correlation between the postoperative myelographic improvements and clinical results.

山口大学医学部整形外科学教室　池畑孝次郎

10

Experimental Studies on Resectability of the Liver in Hemorrhagic Shock

YOSHIO YAMAZAKI

First Deparment of Surgery, School of Medicine, Mie University (Director: Prof. Dr. RYUJI MIZUMOTO), Tsu, Mie, Japan.

Arch Jpn Chir **51**: 144～158, 1982.

The purpose was to elucidate resectability of the liver in dogs with hemorrhagic shock, which was made by bleeding through the femoral artery and maintained for various lengths ranging from 0 to 120 minutes, with or without a hepatectomy.

Long survival was limited to within 15 minutes in shock alone, and to 40% hepatectomy immediately after shock.

The longer in shock or the more removal of the liver, the higher motality rate due to respiratory circulatory failure during the first week. The causes of death in the 2nd to 3rd week were pneunonia, gastrointestinal bleeding and DIC, or those multiple organ failures. The ICG Rmax and lipid emulsion tests correlated well with the prognosis.

三重大学医学部第1外科学教室　山碕芳生

11

Mitral Regurgitation due to a Calcified Myxoma

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Tokio TAMURA

Department of Pediatric Circulation, Tenri Hospital, Tenri, Nara, Japan.

Arch Jpn Chir **51**: 159～166, 1982.

The patient, a 15-year-old boy, had been suffering from left and right heart failure for one year.

He underwent an operation based on preoperative diagnosis of calcified myxoma in the left atrium and mitral regurgitation. A perforation, 9.5 mm in diameter, in the center of the posterior leaflet of the mitral valve was found. The myxoma in LA had an exposed calcification in the top, which may have rubbed the posterior leaflet, resulting in the perforation. Severe brain damage was brought about following cadiac tamponade, which occurred shortly after the operation. Autopsy was denied.

In a calcified myxoma, ultrasonic cardiography is the most useful and safest examination. When a calcified myxoma is diagnosed, emergency operation should be performed, considering the possible damage to the mitral leaflet and/or chordae tedineae.

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12

Surgical Repair of Tetralogy of Fallot Associated with Unilateral Anomaly of the Pulmonary Artery

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Arch Jpn Chir **51**: 167～175, 1982.

Two cases in this report were managed by use of a Hancock's conduit (HC) to completely prevent subsequent pulmonary regurgitation (PR). In the 1st case, the left pulmonary artery (PA) rose from the aorta through a PDA. The PDA was ligated and the HC was placed between the left PA and the right ventricle. Postoperative intraalveolar bleeding was under control after 7 days. In the 2nd case, the left PA was hypoplastic and smaller than the right PA. A HC was sutured to the site between the left and right PA. However, the left PA was kinked interrupting the blood flow. The intraalveolar bleeding, possibly from the right lung, was uncontrolled.

In tetralogy of Fallot with unilateral dysplasia, pulmonary hypertension and PR are anticipated. Thus it is advisable that a HC is used to completely prevent subsequent PR and to overcome right heart failure.

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Malignant Duodenocolic Fistulae —A Report of Three Cases—

KOHICHI NAKAMOTO, AKIRA TANAKA, NAOKI NITTA, SHUNJI KIKUCHI, YOSHINORI NIO, KENICHI MURASAWA, HITOSHI KATOH and KIMIO HENMI

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Arch Jpn Chir **51**: 176～185, 1982.

The purpose of this study is to report three cases of malignant duodenocolic fistulae encountered in our hospital and to review the diagonosis and the treatment. Both bari um meal and barium enema were available in demonstrating the fistulae. In an attempt to delineate fine structures, we adopted both hypotonic duodenography and superior mesenteric arteriography in addition. In resectable cases we believe one stage radical operation is a treatment of choice for malignant duodenocolic fistulae.

赤穂市民病院外科　中元光一，田中　明，新田直樹，菊池俊二，仁尾義則，村沢賢一，加藤仁司，辺見公雄

14

Regional Distributions of Catecholamines in Dog Cerebral Arteries-Existence of Dopaminergic Fibers

YOSHIO SUZUKI and TOMOHISA OKADA

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Arch Jpn Chir **51**: 201～207, 1982.

The regional distributions of dopamine (DA) and noradrenaline (NA) were investigated in dog cerebral arteries. The different distribution patterns of these two amines suggest that DA has another role in addition to being a precursor of NA, that is, it may also act as a neurotransmitter contained in its own nerve fibers. Postganglionic sympathetic denervation produced a reduction in the concentrations of both amines. However, there was an apparent discrepancy of decrease between DA and NA since the decrease of DA was less compared with the decrease of NA. These results suggest that a small amount of dopaminergic fibers exist in cerebral arteries.

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15

Clinical Studies on Cervical Osteochondrosis

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Arch Jpn Chir **51**: 208～275, 1982.

Materials for cervical osteochondrosis are 200 cases with myelopathy and 60 cases with radiculopathy treated surgically, and 36 cases with radiculopathy treated conservatively.

The purpose of this study is clinical analysis on cervical osteochondrosis.

The follow-up study for the cases treated surgically, was conducted at the average 2.5 years in radiculopathy and average 5.1 years in myelopathy.

Investigations were as follows.:

These were our classification of type, the transition of subjective symptoms after onset, clinical findings and laboratory findings according to our classification, further the factors conjecturing the severity of neurological deficit, lesional type, the results after treatment, the transition after surgical treatment, the factors determining the results after surgical treatment, the course after discharge, reoperative cases and the others.

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16

Clinical Application of the Segmental Spinal Evoked Potentials at the Cervical Spinal Cord —An Analysis about the Patients with Cervical Ostechondrosis—

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Department of Orthopaedic Surgery, Yamaguchi University School of Medicine (Director: Prof. Dr. SUSUMU HATTORI), Ube, Yamaguchi, Japan.

Arch Jpn Chri **51**: 276～288, 1982.

The segmental spinal evoked potentials (SSEP) at the cervical spinal cord were measured in 134 cases with cervical osteochondrosis.

In cases with cervico-omo-brachial syndrome, SSEP were clearly obtained from C4-5 to C6-7 intervertebral level.

In cases with osteochondrotic radiculopathy, the abnormal waves were recognized on the first R wave.

In cases with osteochondrotic myelopathy, the abnormal waves were found commonly on the second N wave.

The author believes the level and severity of the cervical spinal cord lesion or root lesion can be determined by use of SSEP.

山口大学医学部整形外科学教室　重松昭彦

17

Clinical Study on Thoracic Osteochondrotic Myeloapthy

KIYOSHI KAWANO

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Arch Jpn Chir **51**: 289～306, 1982.

This report presents clinical analysis of thoracic osteochondrotic myelopathy on 18 paients who have been treated surgically.

Back apin or numbness of the lower limbs occurred as an initial symptom (stage I), then sensory disturbance (stage II) and motor disturbance (stage III) of the lower limbs and finally bladder dysfunction (stage IV) were followed.

Plain roentgenograms, tomograms, myelograms and other examinations were useful for diagnosis of the level and degree of lesion in this disorder.

Anterior decompression with fusion and laminectomy were main operative methods, and satisfactory results were obtained more in anterior approach.

Post-operative results in this series were excellent or good in 16 cases (89%) out of 18.

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18

Application of Microfluorometry to Cardiovascular Surgery I. Evaluation of the Viability of Myocardium by Microfluorometry

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Arch Jpn Chir **51**: 307～314, 1982.

An on-line, non-invasive method of monitoring the viability of myocardium in cardiac ischemia is described. The technique is based on the differences in spectral properties between the oxidized and reduced forms of pyridine nucleotide. The mitochondrial NADH fluorescence is an efficient indicator of intracellular oxygen concentration and changes in metabolic condition.

Under total cardiopulmonary bypass, the fluorescent emission from the surface of the canine hearts (RV epicardium) was monitored. From the extent of decrease of the NADH fluorescence at reperfusion, four grades of the viability of myocardium in cardiac ischemia were classified.

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19

Autoradiographic Studies on Nucleic Acid Synthesis of Human Gastric Cancer Cells I. Relationship between Nucleic Acid Synthesis of Cancer Cells and Clinicopathological Findings

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Arch Jpn Chir **51**: 315～326, 1982.

The rate of nucleic acid synthesis of human gastric cancer cells was studied autoradiographically and was compared with clinicopathological findings.

1) ^{3}H-thymidine labeling index (TLI, mean 22.4%, n=21) ranged from 6.2% to 39.5%. Mitotic index (mean 19.6‰) ranged from 11.8‰ to 34.8‰.
2) Average TLIs in the cancerous lesions with serosal invasion, in microscopical stages III and IV, in scirrhous type and in cancer cells locating in pm- and ss-layers showed lower values compared with the counterparts.
3) ^{3}H-uridine labeling index (mean 92.7%) ranged from 75.0% to 99.8%.

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20

Autoradiographic Studies on Nucleic Acid Synthesis of Human Gastric Cancer Cells II. Effects of 5-Fluorouracil on Nucleic Acid Synthesis of Cancer Cells

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Arch Jpn Chir **51**: 327～335, 1982.

Changes in nucleic acid synthesis of gastric cancer cells by oral administration of 5-fluorouracil (5-FU) were evaluated autoradiographically.

1) Average ^{3}H-thymidine labeling index (TLI) in the administered group (31.8%, n=13) was a significantly high value compared with that of the control group (22.4%, n=21). This result is considered to show that the pharmacological effects of 5-FU appeared on the cancer cells by the clinical administration of 5-FU.
2) Increase in TLI of the administered group was also found in the advanced stages. However, the degree of its increase seemed to be higher in the early stages.
3) Average ^{3}H-uridine labeling index (89.9%) was not different from that (92.7%) of control group.

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21

Effect of Intravenous Administration of Cimetidine, an H_2 Receptor Antagonist, on Postoperative Gastrointestinal Bleeding in Neurosurgical Cases

KOUZO MORITAKE, KYO NIIJIMA, MINORU HOSHIMARU, YUJI KINUTA, HAJIME HANDA

Department of Neurosurgery, Kyoto University Medical School (Director: Prof. Dr. HAJIME HANDA) Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 336～343, 1982.

In 22 patients with postoperative upper gastrointestinal bleeing, cimetidine was given intravenously. Ten cases had subarachnoid hemorrhage following rupture of cerebral aneurysm or cerebral arteriovenous malformation, or hypertensive intracerebral hemorrhage. Eleven other cases had mass lesions located close to the hypothalamus and/or brain stem. In 13 of 22 patients, upper gastrointestinal bleeding occurred within 3 days after craniotomy. Cimetidine was very effective in almost all cases with acute gastrointestinal mucosal lesions (AGML), but poorly effective in older patients with chronic lesions.

京都大学医学部脳神経外科学教室　森竹浩三，新島　京，寶子丸稔，絹田祐司，半田　肇

22

Aneurysm at the Fenestration of Basilar Artery—Case Report—

YOKO NAKASU, SATOSHI NAKASU, MINORU KIDOOKA and JYOJI HANDA

Department of Neurosurgery, Shiga University of Medical Science (Director: Prof. Dr. JYOJI HANDA), Otu, Shiga, Japan.

Arch Jpn Chir **51**: 344～348, 1982.

An aneurysm at the fenestration of the basilar artery is reported. Six similar cases with an aneurysm at this unusual location have been recorded. In all 7 patients including the present one, the aneurysm characteristically arose at the proximal end of the fenestration, where a structural defect of the medial coat is known to be present.

滋賀医科大学脳神経外科学教室　中洲庸子，中洲　敏，木戸岡　実，半田譲二

23

Tricuspid Atresia with Polysurgery —A case report—

KAZUAKI MINAMI, NORIKAZU TATSUTA, YUTAKA KONISHI, KATSUHIKO MATSUDA, TOMOHIKO MURAGUCHI, ARIO YAMAZATO, YUKIO CHIBA, YOSHISADA SHIRAISHI, HIROSHI ISHIHARA and YORINORI HIKASA

The 2nd Department of Surgery, Kyoto University Faculty of Medicine (Director: Prof. Dr. YORINORI HIKASA), Sakyo-ku, Kyoto, Japan.

TADASHI UEDA

The Department of Pediatrics, Kyoto University Faculty of Medicine (Director: Prof. Dr. HARUKI MIKAWA), Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 349～357, 1982.

A case of tricuspid atresia Ib, in which Glenn operation (at 14 m.o.), left sided Blalock-Taussig operation (6 y.o.), Fontan-like operation (9 y.o.), closure of a previously undetected ASD (10 y.o.) and two subsequent operations for hemostasis were performed, is described herein. Profound hypothermia combined with surface cooling and core-cooling by H-L bypass is useful and advisable for polysurgery of the heart, especially when cannulation into SVC is impossible due to severe adhesion.

After a Fontan-like operation, if an ASD is still present, systemic blood pressure may be good, but it is difficult to alleviate cyanosis. It should be emphasized that when prolonged intensive care is necessary, consideration must be given to the patient's mental condition.

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京都大学医学部小児科学教室　上田　忠

24

Changes in the Energy Substrate after Hepatectomy —Preferential Utilization of Fatty Acids and its Effect on Hepatic Regeneration after Major Hepatectomy—

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The 1st Department of Surgery, Faculty of Medicine, Kyoto University, Sakyo-ku, Kyoto, 606, Japan.

Arch Jpn Chir **51**: 365～381, 1982.

Changes in the energy substrate utilized by the remnant liver after hepatectomy were studied in relation to the hepatic energy status in hepatectomized rabbits. It is suggested that the remnant liver metabolism switches to predominant utilization of fatty acid as an energy source when the energy charge of the remnant liver decreases after major hepatectomy; it then becomes able to utilize glucose with the restoration of energy charge level. Fatty acid oxidation contributes to enhanced hepatic regeneration by elevating the decreased energy charge level after major hepatectomy.

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25

The Histogenesis of Hamster Pancreatic Cancer Induced by N-nitroso-bis (2-hydroxypropyl) amine

KAZUYUKI MIYAZAKI, HIDENARI TAKASAN and TAKAYOSHI TOBE

The 1st Department of Surgery, Faculty of Medicine, Kyoto University (Director: Prof. Dr. TAKAYOSHI TOBE), Sakyo-ku, Kyoto, Japan.

YOSHIHIRO HAMASHIMA

The 2nd Department of Pathology, Faculty of Medicine, Kyoto University (Director: Prof. Dr. YOSHIHIRO HAMASHIMA), Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 382～395, 1982.

Syrian golden hasmters treated weekly with 125 mg/kg body weight (Group 1), 250 mg/kg body weight (Group 2) or 500 mg/kg body weight (Group 3) of N-nitroso-bis(2-hydroxypropyl) amine were sacrificed at 5, 10, 15, 25, 35 weeks and when moribound. Enlargement of the islets, focal hyperplasia of the ductules and ducts appeared early and became multilayer hyperplasia extending to whole pancreas. In succession, multiplicative lesions appeared at the islets and the ductules. They were first discovered also in exocrine acini. Almost all adenocarcinomas were thought to originate from malignant multiplications. A few of them were thought to originate from intraductal carcinomas of the ducts.

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京都大学医学部病理学教室第2講座　浜島義博

26

Motility of the Gastric Tube after Surgery of the Upper Alimentary Tract with Special Reference to High Pressure Zone at the Gastroduodenal Junction

EISHI MIZUTA

The Second Surgical Division, Yamaguchi University School of Medicine. (Director: Prof. Dr. KOICHI ISHIGAMI)

Arch Jpn Chir **51**: 396～422, 1982.

By means of gastroduodenal manometry, electromyogram and measurement of half gastric emptying time using ^{99m}Tc sulfur colloid, gastric motility after surgery of the upper alimentary tract was investigated. In the gastric tube for esophageal reconstruction following resection of esophageal cancer, the intraluminal pressure at the gastroduodenal junction elevated and evacuation of the gastric contents was delayed. So it is thought that an additional pyloroplasty was necessary to the gastric tube. On the other hand, normal patterns of gastric motility have been kept in the gastroduodenal junction after SPV and it seemed to be unnecessary to add a pyloroplasty to SPV.

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27

Somatosensory Evoked Potential in Experimental Intracerebral Hemorrhage

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Department of Neurosurgery, Mie University Medical School, Director: Prof. Dr. SHIRO WAGA Mie, 514 Japan.

Arch Jpn Chir **51**: 423～438, 1982.

Somatosensory evoked potential (SEP) was recorded in 16 mongrel dogs with intracerebral hemorrhage which was experimentally simulated by shunting blood from a femoral artery. The natural course was investigated in 9 dogs, and 7 dogs had surgical removal of the intracerebral hematoma within several hours after hemorrhage.

In conclusion, amplitudes of N-1 and P-2 components on the affected side significantly decrease within 3 hours (Table 3, 4). If the intracerebral hemorrhage caused the changes on the SEP and continued for several hours, an abnormality of the SEP could not return to pre-hemorrhagic pattern, in spite of surgical evacuation of the intracerebral hematoma.

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28

Application of Microfluorometry to Cardiovascular Surgery II. Evaluation of the Ischemic Mitochondrial Damage and the Safety Limit of the Intermittent Cold Blood Cardioplegia by Means of Myocardial Metabolism.

YUKIO CHIBA

The 2nd Department of Surgery, Faculty of Medicine, Kyoto University, Sakyo-ku Kyoto, 606, Japan. (Director: Prof. Dr. YORINORI HIKASA)

Arch Jpn Chir **51**: 439～449, 1982.

The evaluation of the effects of intermittent cold blood cardioplegia on myocardial protection and ischemic mitochondrial damage by means of NADH fluorescence, myocardial PO_2, high-energy phosphate conpounds and mitochondrial respiratory function is described in this report.

In canine placed on cardiopulmonary bypass, the aorta was clamped and a potassium cardioplegic solution was injected into the aortic root and the myocardial temperature was maintained 15°C by topical cooling. Cold blood cardioplegia (containing potassium 25 mEq/l) was infused into the aortic root (10 ml/Kg) from 100 cm height at 30 minutes intervals.

This experimental study proves that intermittent blood cardioplegia allows prolonged aortic clamping (3 hours) with greater safety. After 3 hours myocardial ischemia, the mitochondrial respiratory chain is damaged and the oxygen delivered by CBC is not used any more in mitochondria.

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29

Application of Microfluorametry to Cardiovascular Surgery III. Comparison between Cold Blood Cardioplegia and Crystalloid Cardioplegia by Means of Myocardial Metabolism, Lipid Peroxidation and Mitochondrial Coenzyme Q_{10}

YUKIO CHIBA

The 2nd Department of Surgery, Faculty of Medicine, Kyoto University, Sakyo-ku, Kyoto, 606, Japan. (Director: Prof. Dr. YORINORI HIKASA)

Arch Jpn Chir **51**: 450～459, 1982.

In this report intermittent cold blood cardioplegia is compared to crystalloid cardioplegia by means of the NADH fluorescence, myocardial PO_2, myocardial energy charge, tiobarbiturate reactive substance (TBARS) and coenzyme Q_{10} (CoQ_{10}) in the mitochondria of myocardial cell.

This experimental study proves that the intermittent cold blood cardioplegia has apparently several advantages compared with the intermittent crystalloid cardioplegia. The heart is provided with the intermittent reoxydation and NADH is oxygenated to NAD instantly. The myocardial ATP is preserved well and CP is replenished adequately. The intermittent cold blood cardioplegia does not seem disadvantageous in lipid peroxydation.

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30

An Analysis of Altered Energy Metabolism in Hemorrhogic and Endotoxin Shock; Experimental Studies on the Basis of Hepatic Mitochondrial Activities

YASUYUKI SHIMAHARA

The First Department of Surgery, Faculty of Medicine, Kyoto University. (Director: Prof. Dr. TAKAYOSHI YOBE) Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 460～480, 1982.

The derangement of energy metabolism in hemorrhagic and endotoxin shock was analyzed on the basis of heptaic mitochondrial activities. In hemorrhagic shock, cellular energy level is maintained only by glycolysis, resulting in rapid decrease in energy charge level. In endotoxin shock, it is maintained by β-oxidation of fatty acid, being accompanied by marked enhancement of mitochondrial oxidative phosphorylation. The most basic event between reversible and irreversible shock is whether it is possible or not to maintain the cellular energy charge at high level. It was clarified that the energy charge could not be restored in irreversible stages due to the mitochondrial impairment.

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31

An Experimental Study of Vitamin E on the Etiology of Pancreatitis

HITOSHI KATO

Second Department of Surgery, Faculty of Medicine, Kyoto University. (Director: Prof. Dr. YORINORI HIKASA)

Arch Jpn Chir **51**: 481～494, 1982.

The role of vitamin E (VE) and essential fatty acids (EFA) in the etiology of pancreatitis was examined experimentally. Hamsters were weaned at three weeks and divided into three groups: VE sufficient and EFA added diet (Group 1), VE deficient and EFA added diet (Group 2), and VE, EFA deficient diet (Group 3). Pancreatitis was induced by taurocholate and trypsin, infusing into the pancreatic duct. Severe pancreatitis was induced more frequently in the vitamin E deficient diet group (Groups 2 and 3) than in the vitamin E sufficient diet group (Group 1) ($p<0.005$). Although in Group 3, severe pancreatitis was recognized somewhat more frequently than in Group 2, this difference was not significant.

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32

Hemolysis after Implantation of Prosthetic Heart Valves

YUTAKA KONISHI, NORIKAZU TATSUTA, KAZUAKI MINAMI, KATSUHIKO MATSUDA, NOBORU NISHIWAKI, YOSHISADA SHIRAISHI, ARIO YAMASATO, YUKIO CHIBA, TOMOHIKO MURAGUCHI, SHINJI MURATA, MASAKI AOTA, MITSURU KITANO and YORINORI HIKASA

The 2nd Department of Surgery, Faculty of Medicine, Kyoto University. (Director: Prof. Dr. YORINORI HIKASA)

Arch Jpn Chir **51**: 495～503, 1982.

Intravascular hemolysis following implantation of prosthetic heart valves were studied in 70 patients by determinations of serum hemoglobin, serum haptoglobin, serum lactic dehydrogenase and reticluocyte count. More hemolysis was found in patients with prosthesis in the left heart than in the right heart and in patients with Starr-Edwards cloth-covered valves than with other types, including Starr-Edwards non-cloth-covered valves.

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33

Surgical Treatment of Congenital Coronary Arterial Fistula

KAZUAKI MINAMI, NORIKAZU TATSUTA, YUTAKA KONISHI, KATSUHIKO MATSUDA, NOBORU NISHIWAKI, ARIO YAMASATO, YUKIO CHIBA, YOSHISADA SHIRAISHI, TOMOHIKO MURAGUCHI and YORINORI HIKASA

The 2nd Department of Surgery, Faculty of Medicine, Kyoto University (Director: Prof. Dr. YORINORI HIKASA)

MICHIO YOKOTA

Department of Cardiovascular Surgery, Shizuoka Chilren's Hospital

TADASHI UEDA and TADASHI HAYASHIDERA

Department of Pediatrics, Faculty of Medicine, Kyoto University

Arch Jpn Chir **51**: 504～513, 1982

Six patients with congenital coronary fistula have been operated upon during a 13 years period. All six cases are of terminal fistula type: left coronary artery to right atrium fistula (4), left coronary artery to right ventricle fistula (1), and right coronary artery to main pulmonary artery fistula (1).

All patients survived the operation and a recent follow-up study showed that they are fully active and well.

Early elective closure of congenital coronary arterial fistula should be indicated in all patients because of the high incidence of late symptoms and complications.

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静岡県立こども病院心臓血管外科　横田通夫
京都大学医学部小児科学教室　上田　忠，林寺　忠

34

Conversion of Percutaneous Transhepatic Cholangiodrainage Tube into an Endoprosthesis by Means of Burying its External Tip in the Subcutaneous Tissue

HIROYUKI NOGUCHI, MASAHARU KATSUMI, NOBUJI KONO, NOBUO TAKEI, HIROAKI KAWASHIMA, YOJI TABUSE, MASAKAZU SASAKI, MICHIAKI KAKIHARA, YOSHIHIRO SUGIMOTO and HIDEO KIN

Department of Gastroenterological Surgery, Wakayama Medical College

SADAO OKAMURA and YUZO OHSAWA

Department of Surgery, Kainan Municipal Hospital

Arch Jpn Chir **51**: 514～518, 1982.

Recently percutaneous transhepatic cholangiodrainage (PTCD) has been performed with safety in patients with inoperable carcinoma of the head of pancreas or the common bile duct and converted into internal drainage using PTCD tube with several side holes in some patients.

PTCD tube with several side holes for internal drainage could be changed for an endoprosthesis by the method that the external tip of the PTCD tube was buried in the subcutaneous tissue.

In 4 patients who had received PTCD for inoperable lesions, PTCD tube with several side holes for internal drainage could be changed for an endoprosthesis by the above-mentioned method.

It is easy, safe and little distressing to perform this method and to remove and reinsert the endoprosthesis.

和歌山県立医科大学消化器外科　野口博志，勝見正治，河野暢之，竹井信夫，田伏洋治，川嶋寛昭，佐々木政一，柿原美千秋，杉本恵洋，金　秀男
海南市民病院外科　岡村貞夫，大沢祐三

35

Therapeutic Effect of Canrenoate Potassium (Soldactone®) in Patients after Open-Heart Surgery.

KATSUHIKO MATSUDA, NORIKAZU TATSUTA, YUTAKA KONISHI, KAZUAKI MINAMI, NOBORU NISHIWAKI, ARIO YAMASATO, YUKIO CHIBA, HIROSHI ISHIHARA, SHINJI MURATA, YOSHISADA SHIRAISHI, TOMOHIKO MURAGUCHI, YORINORI HIKASA

The 2nd Department of Surgery, Faculty of Medicine, Kyoto University (Director: Prof. Dr. YORINORI HIKASA) Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 519～527, 1982.

Therapeutic effects of carnenoate potassium (Soldactone®) on urine volume, serum Na^+, serum K^+, urine Na^+, urine K^+ and urine Na^+/K^+ ratio were studied in patients after open-heart surgery, and compared with a control untreated with Soldactone®. Soldactone® (200 mg) was injected intravenously into ten patients daily from two days before to three days after the operation. We concluded that Soldactone® significantly showed a diuretic effect in patients after open-heart surgery, but did not clearly nidicate an anti-aldosterone effect.

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36

Surgical Treatment for the Infected Aneurysms of the Extremities

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HIROSHI WATANABE*

*Surgical Department Ohtsu Red Cross Hospital

MASATAKA OSARAGI**, KEISUKE KODAMA**

**Surgical Department Shimane Prefectural Hospital

Arch Jpn Chir **51**: 528～533, 1982.

We analyzed the treatment of 31 peripheral aneurysms and experienced 11 cases of infected aneurysms 7 in femoral, 2 in brachial 1 in radial and 1 in iliac artery.

Adequate treatment requires coplete resection of the infected aneurysm wall in contrast to that of ordinary aneurysms. Distal artery may be ligated. But restoration of vascular continuity should be performed in major vessels with extra-anatomic bypass.

島根医科大学第1外科　岡本好史，山田公弥，中山健吉
大津赤十字病院外科　渡辺　裕
島根県立中央病院外科　大仏正隆，児玉啓介

37

Solitary Schwannoma of Sciatic Nerve. Diagnosis by CT

MANABU SATO, JYOJI HANDA, and TSUNEMARO KOYAMA

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Arch Jpn Chir **51**: 534～536, 1982.

A patient with a long history of sciatic pain due to a solitary schwannoma of the sciatic nerve in the buttock is reported. The location and nature of the lesion were diagnosed preoperatively only with the aid of CT. High resolution CT of recent generation is a useful adjunctive measure in assessment of soft tissue lesion in patients with pain problems.

38

A Case of Annular Pancreas in the Adult Associated with Cholelithiasis and Congenital Anomaly: Demonstration of the Rare Annular Duct on Cholangiography

YOH KASAHARA, YUKIKAZU YAMADA, SHIGERU TANAKA, NARUMI SONOBE, HIROYA UMEMURA and TAKESHI KUYAMA

Second Department of Surgery, Kinki University School of Medicine (Director: Prof. TAKESHI KUYAMA)

Arch Jpn Chir **51**: 537～544, 1982.

A 51 year-old female was discovered annular pancreas by hypotonic duodenography. She was associated with cholelithiasis and congenital ocular anomaly. After partial hepatectomy and choledocho-lithotomy, cholangiogram through T tube incidentally revealed the common bile duct joining the duct of Wirsung to form a common channel prior to entering the duodenum, and subsequent series demonstrated that the main pancreatic duct was in direct continuity with the duct of annulus. The accessory duct of Santorini was not visualized. The remainder of the pancreatogram was normal. Several characteristics of the annular pancreas in the adult collected from Japanes cases were presented and reviewed.

近畿大学医学部第2外科教室　笠原　洋，山田幸和，田中　茂，園部鳴海，梅村博也，久山　健

39

Nuclear Magnetic Resonance (NMR): Its Application to the Medical Science, Especially to the Field of Neurological Surgery.

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Department of Neurosurgery, Kyoto University Medical School, Kyoto.

Arch Jpn Chir **51**: 557～565, 1982.

Recently nuclear magnetic resonance (NMR) imaging and topical magnetic resonance (TMR) have been practically introduced into the medical science. ^{1}H-NMR imaging (NMR-CT) would offer us not only tomographic images of human body but also pathophysiological findings at molecular level. On the other hand we can noninvasively observe in situ tissue metobolism with ^{31}P-TMR. In this article we are going to review shrotly the probalility of NMR technique from view point of the neurological surgeons and to present our experience.

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40

Usefulness of Serial CT Scans for Evaluation of Histology and Prognosis in Gliomas

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Arch Jpn Chir **51**: 566～582, 1982.

One-hundred and twenty-eight patients with gliomas were reviewed to study prognostic factors visible on the CT scans.

On sequential CT scans in low-grade astrocytomas, improvement was observed in 70% with a persistent low density area and lack of mass effect or contrast enhancement. CT findings suggestive of malignant transformation were detected in 22.8%.

In malignant gliomas, remission rate was 21.1% in a mean follow-up period of 22.8 months. A ring contrast enhancement was a poor prognostic sign. The cases who had a remission period of more than 6 months survived significantly longer.

Postirradiation brain atrophy was observed in 34%. Delayed radiation brain damage was detected in 4.6%.

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41

Role of Blood Flow in the Development of Gastric Mucosal Injury Associated with Various Diseases
I. Changes of Gastric Mucosal Blood Flow in Hemorrhagic Shock

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Arch Jpn Chir **51**: 583～594, 1982.

The effect of hemorrhage and blood transfusion on the regional blood flow of the stomach was studied using radioactive microsphere technique in a rabbit shock model. The striking increase of mucosal blood flow following blood transfusion caused bleeding from the mucosa of the ischemic corpus in hemorrhagic period. The higher susceptibility of the corpus to hemorrhagic shock may be due to the greater degree of rapid increase of mucosal blood flow occurring in this portion alone after blood transfusion as well as its higher vulnerability to ischemia in the hemorrhagic period.

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42

Role of Blood Flow in the Development of Gastric Mucosal Injury Associated with Various Diseases
II. Changes of Gastric Mucosal Blood Flow in Hepatobiliary Diseases

TADAO MANABE

The 1st Department of Surgery, Faculty of Medicine, Kyoto University, Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 595～611, 1982.

The mechanism of gastric mucosal injury associated with cirrhosis of the liver, obstructive jaundice and necrosis of the liver was studied from a hemodynamic point of view using radioactive microsphere technique in rabbits. In rabbits with cirrhosis of the liver, a significant increase of blood flow in the corpus and a marked decrease of blood flow in the antrum were observed in the mucosal layer, and erosions or shallow ulcers appeared in the antrum. In rabbits with obstructive jaundice and necrosis of the liver, mucosal blood flow decreased drastically in every part of the stomach and erosions were seen in the corpus of the gastric mucosa.

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43

Study on Choleretic Effect of Endogeneous Plasma Secretin Based on Reconstructive Procedure of Alimentary Tract. (1) Appraisal of Reconstructive Procedure in Total Pancreatectomy.

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Arch Jpn Chir **51**: 612～628, 1982.

The patients with total pancreatectomy had a significantly impaired secretory responses of the plasma secretion compared to those with partial gastrectomy and pancreaticoduodenectomy. Among the patients with total pancreatectomy, those with Billroth II type anastomosis showed a further impaired responses compared to those with Billroth I type anastomosis.

The levels of endogeneously released secretin and biliary secretion had linear relation when localized stimuli were given in the various parts of the alimentary tract. To improve the impaired biliary secretion after total pancreatectomy, Billroth I type anastomosis for the reconstruction procedure of the alimentary tract is recommended.

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44

Study on Choleretic Effect of Endogeneous Plasma Secretin Based on Reconstructive Procedure of Alimentary Tract. (2) Adaptive Change after Gastroenterostomy.

KEIZO OGASAWARA

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Arch Jpn Chir **51**: 629～639, 1982.

The adaptive change of the secretin-secreting cells (S-cell) in the small intestine was studied in dogs by measuring simultaneously the secretory responses of endogeneously released plasma secretin and biliary secretion to the infusion of 0.1 N HCl into jejunum or ileum before and after gastrojejunustomy, gastrectomy with gastrojejunostomy, and gastroileostomy, which were designed to let the meals enter directly into jejunum or ileum without passing duodenum. Only jejunum has potential to evoke the adaptively increased secretion of the plasma secretin and bile when exposed to gastric contents and, that food is a main factor to stimulate S-cells to release a increased amount of the hormone.

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45

Surgical Treatment of Complete Atrioventricular Canal

KAZUAKI MINAMI, NORIKAZU TATSUTA, YUTAKA KONISHI, KATSUHIKO MATSUDA, ARIO YAMASATO, YUKIO CHIBA, HIROSHI ISHIHARA, YOSHISADA SHIRAISHI, NOBORU NISHIWAKI, TOMOKAZU MURAGUCHI and YORINORI HIKASA

The 2nd Department of Surgery, Faculty of Medicine, Kyoto University (Director: Prof. Dr. YORINORI HIKASA)

TADASHI UEDA and TADASHI HAYASHIDERA

Department of Pediatrics, Faculty of Medicine, Kyoto University (Director: Prof. Dr. HARUKI MIKAWA)

Arch Jpn Chir **51**: 640～648, 1982.

Seven patients with complete A–V canal (type A : 4, type B : 2 and type C : 1) have undergone radical operation, using a 'folded single patch' or a 'cross-patch', during a 10 years period. Four patients survived the operation but three patients died. Two of the cases which survived underwent reoperation because of residual shunt and regurgitation, which, occurring from insufficient healing of sutures, resulted in postoperative heart failure.

The advantage of the cross-patch method is that there is no decrease in valve area. Hypoplastic common A–V leaflet should be managed by valve advancement using the cross-patch.

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京都大学医学部小児科学教室　上田　忠，林寺　忠

Scanning Electron Microscopic Observation of Ossification and Calcification of the Ligamentum Flavum

SHIGEKI OKA

Department of Orthopedic Surgery, Yamaguchi University School of Medicine, Ube. (Director: Prof. Dr. SUSUMU HATTORI)

Arch Jpn Chir **51**: 671～694, 1982.

According to SEM observation of the ligamentum flavum with no other ossifications in roentgenograms, elastic fibers formed a dense and regular pattern with interconnecting micro-fibrils.

Observation of the ossification of the thoracic ligamentum flavum showed degenerative changes of fibers, followed by the appearance of numerous osteocyte lacunae with granular substance. And finaly there appeared osteocytes, resulting in the enchondral ossification.

Observation of the calcification of the cervical ligamentum flavum showed a punched-out region composed of different shapes of crystals, determined CPPD by X-ray diffraction study.

The calcification and ossification of the ligamentum flavum are completely different conditions.

山口大学医学部整形外科学教室　丘　茂樹

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Experimental Study on Local Hyperthermia Therapy of Malignant Brain Tumor Using Radiofrequency

TADAHIRO KANAYAMA

Department of Neurosurgery, Brain Reserch Institute, Niigata University (Director: Prof. Dr. RYUICHI TANAKA), Asahi-machi, Niigata, Japan.

Arch Jpn Chir **51**: 695～712, 1982.

Local hyperthermia therapy by radiofrequency waves of 13.56 MHz was evaluated in experimental brain tumors of rat and monkey which were induced by Rous sarcoma virus.

Temperature difference between tumor and normal tissues was about 2 to 5°C in rat subcutaneously-transplanted brain tumors and up to 10°C in monkey brain tumors.

Successful treatment was obtained in monkey which showed a complete and permanent cure of the highly malignant glioma.

新潟大学脳研究所脳神経外科学教室　金山忠弘

Correlation and Anomalies of the Vascular Structure in Glisson's Area around the Hepatic, from the Standpoint of Hepatobiliary Surgery

HIDEKI SUZUKI

First Department of Surgery, School of Medicine, Mie University (Director: Prof. Dr. RYUJI MIZUMOTO)

Arch Jpn Chir **51**: 713～731, 1982.

One hundred cadavers were studied to estimate correlation and anomalies of the vascular structure around the hepatic hilum. Such estimation in helpful to perform hepatobiliary surgery safely.

On extrahepatic pathways, an accessory hepatic duct was observed in 9.0%, a dual cystic artery in 30.2% and an aberrant hepatic artery in 33.0%.

Relationships among the portal vein, the hepatic artery and the bile duct were studied at the level of the hepatic duct bifurcation, and on the Cantlie's line and the left segmental fissure which are the cut surface of the typical hepatectomies, such as right and left lobectomies, right trisegmentectomy and left lateral segmentectomy.

三重大学医学部第1外科学教室　鈴木英明

49

Studies of Trophic Effects on the Pancreas in Rats. I. Trophic Effect of Trypsin Inhibitor on the Remnant Pancreas after Major Pancreatectomy. II. Influence of obstructive Jaundice on Poncreatico-Trophic Effect of Trypsin Inhibitor. III. Trophic Effect of Obstructive Jaundice alone to the Pancreas

NOBUO BABA

The 1st Department of Surgery, Faculty of Medicine, Kyoto University (Director: Prof. Dr. TAKAYOSHI TOBE) Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 732～760, 1982.

1. Endocrine and exocrine pancreatic functions in rats after major pancreatectomy were improved by oral administration of synthetic trypsin inhibitor.
2. The pancreatico-trophic effect of synthetic trypsin inhibitor was increased by obstructive jaundice in rats.
3. Obstructive jaundice alone also produced a pancreatico-trophic effect in rats.

京都大学医学部外科学教室第1講座　馬場信雄

The Surgical Treatment of Congenital Aortic Stenosis

KAZUAKI MINAMI, NORIKAZU TATSUTA, YUTAKA KONISHI, KATSUHIKO MATSUDA, ARIO YAMASATO, YUKIO CHIBA, HIROSHI ISHIHARA, YOSHISADA SHIRAISHI, TOMOHIKO MURAGUCHI, NOBORU NISHIWAKI and YORINORI HIKASA

The 2nd Department of Surgery, Faculty of Medicine, Kyoto University (Director: Prof. Dr. YORINORI HIKASA)

TADASHI UEDA

Department of Pediatrics, Faculty of Medicine, Kyoto University

TOKIO TAMURA

Department of Pediatric Circulation, Tenri Hospital

Arch Jpn Chir **51**: 761～773, 1982.

In supravalvular AS, except for the hypoplastic type, the use of a Dacron patch poses no problem in surgical treatment.

In valvular AS, the patient less than 8 years old should be treated by commissurotomy, a safe palliative operation, as a first choice of surgical procedure until the time when radical operation (AVR with or without enlargement of aortic annulus) can be performed.

In subvalvular AS, the membranous discrete type was treated by transaortic resection of the obstructive muscle with good results. In IHSS, clear surgical indications are necessary in order to achieve good results.

京都大学医学部外科学教室第２講座　南　一明，龍田憲和，小西　裕，松田捷彦，山里有男，千葉幸夫，石原　浩，白石義定，村口和彦，西脇　登，日笠頼則
京都大学医学部小児科学教室　上田　忠
天理よろづ相談所病院小児循環器科　田村時緒

51

Clinical Studies of Cervical Spine in Rheumatoid Arthritis

TETSUJI TAIHARA

Department of Orthopaedic Surgery, Yamaguchi University School of Medicine Ube, Yamaguchi (Director: Prof. Dr. SUSUMU HATTORI)

Arch Jpn Chir **51**: 774～794, 1982.

Pathological changes of the cervical spine were investigated in 231 patients of rheumatoid arthritis. In the clinical features, local symptoms were found frequently, in 154 cases (67%), however, cord symptoms were, in 12 cases (5%).

In X-ray, atlant-axial subluxations were found in 78 cases (34%).

Subaxial subluxation is less frequent, found in 23 cases (9%).

Follow-up observation on 23 cases revealed that atlanto-axial subluxation appeared in 3 cases (30%) and subaxial subluxation in 3 cases (14%).

Surgical treatment was performed in 8 cases of atlanto-axial subluxation and 2 cases of subaxial subluxation. The results were generally satisfactory, except one case was died.

山口大学医学部整形外科学教室　多原哲治

52

Clinical Studies of Ossification of the Spinal Ligaments

KAZUYUKI SAKURADA

Department of Orthopedic Surgery, Yamaguchi University School of Medicine. (Director: Prof. Dr. SUSUMU HATTORI)

Arch Jpn Chir **51**: 795～804, 1982.

The radiological studies of 158 cases with ankylosing hyperostosis of the spine (AH) are carried out.

There is some relation between the stage of AH and the one of ossification of supuraspinous ligament (OSSL).

Hyperostotic type of ossification of posterior longitudinal ligament (OPLL) seems to be a part of AH.

Spondylotic type of OPLL can be divided into two groups, that is to say, spondylotic OPLL with spondylosis having less capacity of ossification and the one with AH having more ossification diathesis.

Hahn's groove of the vertebral body is observed in 94 cases (59.5%) out of 158.

山口大学整形外科学教室　桜田和之

53

A Case of Spontaneous Nonsurgical Pneumoperitoneum Associated with Adenocarcinoma in the Esophagogastric Juntion

YOH KASAHARA, SHIGERU TANAKA, YUKIKAZU YAMADA, NARUMI SONOBE, HIROKI MATSUMOTO, TAKAAKI SUDO, HIROYA UMEMURA, SEI SHIRAHA and TAKESHI KUYAMA

The Second Department of Surgery, Kinki University School of Medicine (Director: Prof. Dr. TAKESHI KUYAMA)

SHUJI KAWAI

Surgical Service, Wakakusa Daiichi Hospital (President: Dr. HIROSHI KAWAI)

Arch Jpn Chir **51**: 805～813, 1982.

A 47-year-old housewife suffering from carcinoma in the esophagogastric junction developed so-called nonsurgical pneumoperitoneum preoperatively. Several causative factors producing this pneumoperitoneum have been reported in the literature, such as intrathoracic, abdominal, gynecologic, iatrogenic, and mixed. In our case, involvement of the carcinoma and resultant disturbance of eructation developed the expanded stomach containing swallowed air. Although true process of air leak through the stomach was not detectable, the cause of this pneumoperitoneum in the patient may be due to alteration of gas-permeability of the gastric wall resembling pneumatosis cystoides intestinalis. As a rule, urgent laparotomy is unnecessary in nonsurgical pneumoperitoneum.

近畿大学医学部第二外科学教室　笠原　洋，田中　茂，山田幸和，園部鴨海，松本博城，須藤峻章，梅村博也，白羽　誠，久山　健
若草第一病院外科　川合秀治

Bilateral Internal Carotid Occlusion with Unusual Collateral Pathways. Report of case.

SATOSHI NAKASU, YOKO NAKASU, KAZUO OKAMOTO*, MANABU SATO, ISAO MATUDA, and JYOJI HANDA

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*Department of Neurosurgery, Ohtsu Red Cross Hospital

Arch Jpn Chir **51**: 814～821, 1982.

A case of bilateral internal carotid occlusion with unusual collateral pathways is reported. In a 32-year-old man with subarachnoid hemorrhage, cerebral angiography demonstrated bilateral carotid occlusion at the cavernous portion. Small arteries arose from the cavernous portion of the ICA, together with the internal maxillary branches, formed the dural arterial network in the presellar region, from which the cerebral arteries were partially reconstructed. Such abnormal channels have been described as "rete mirabile" in a few reports. We believe that these anastomoses, though extremely rare, represents the secondarily hypertrophied remnants of first and second arterial arches as collateral routes.

滋賀医科大学脳神経外科学教室　中洲　敏，中洲庸子，岡本和夫*，佐藤　学，松田　功，半田譲二

55

Large Dose of Diuretic for Treatment of Acute Renal Failure after Open-Heart Surgery A, case report

KATSUHIKO MATSUDA, NORIKAZU TATSUTA, YUTAKA KONISHI, KAZUAKI MINAMI, NOBORU NISHIWAKI, ARIO YAMASATO, YUKIO CHIDBA, HIROSHI ISHIHARA, SHINJI MURATA, YOSHISADA SHIRAISHI, TOMOHIKO MURAGUCHI, YORINORI HIKASA

The 2nd Department of Surgery, Faculty of Medicine Kyoto University (Director: Prof. Dr. YORINORI HIKASA) Sakyo-ku, Kyoto, Japan

Arch Jpn Chir **51**: 822～828, 1982.

Acute renal failure is an unusual but lethal complication following open-heart surgery. Recently we have encountered acute renal failure after tricuspid valve replacement. A 45-old man who had had his mitral valve replaced fourteen years before, suffered from acute renal failure after tricuspid valve replacement. Fortunately this patient recovered from it with large dose of diuretic (8390 mg/day). We have descibed its etiology, prognosis and his postoperative course.

京都大学医学部外科学教室第２講座　松田捷彦，龍田憲和，小西　裕，南　一明，山里有男，千葉幸夫，白石義定，村田真司，村口和彦，西脇　登，日笠頼則

56

Transesophageal M-mode Echocardiography: Its Clinical Application for Evaluation of Left Ventricular Function Soon After Cardiac Surgery

TOMOHIKO MURAGUCHI

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The 2nd Department of Surgery, Kyoto University School of Medicine (Director: Prof. Dr. YORINORI HIKASA) Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 831～861, 1982.

Transesophageal M-mode echocardiography provided a clear echogram as a mirror image of the anterior echocardiogram even during and soon after cardiac surgery. Various measurements by this method correlated well with those obtained by anterior echocardiography.

Observing the changes in EF, mVcf, STI and PSP/ESD offered much information concerning LV systolic function after cardiac surgery. Moreover, measurement of pulmonary capillary wedge pressure, combined with LV volume by this method, provided LV diastolic characteristics ("normalized compliance").

Therefore, transesophageal echocardiography appears to be valuable for the evaluation of LV function after cardiac surgery.

大阪市立大学医学部外科学第二講座　村口和彦

57

Biliary Excretion of Copper, Manganese and Zinc in Humans

TSUKASA SEKIYA

The 2nd Department of Surgery, Faculty of Medicine, Kyoto University (Director: Prof. Dr. YORINORI HIKASA) Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 862～881, 1982.

The biliary excretion of copper, manganese and zinc in humans was studied by new methods in order to understand their excretion and to determine the adequate dosage of them under total parenteral nutrition and their role in the gallstone formation. Copper excretion was highly complicated and greatly related to bilirubin. Manganese was highly related to bile acids strongly suggesting that it is in enterohepatic circulation. From the result herein, recommended dosage of trace elements under total parenteral nutrition is discussed and the possibility of their important roles in gallstone formation is suggested.

京都大学医学部外科学教室第２講座　関谷　司

58

Possible Application of Nuclear Magnetic Resonance (NMR) Imaging to the Study of Brain Edema in Sliced Rat Brain

RENIN ASATO

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Arch Jpn Chir **51**: 882～891, 1982.

A series of the sliced rat brain were imaged by a prototype mini-NMR imager. High spatial resolution and excellent object contrast were realized. Images of vasogenic edema from the sliced brain clearly showed the chronological sequences of edema. Paradoxical enhancement effect with EDTA-2Na-Mn might be seemed to enable the evaluation of the blood-brain barrier permeability changes in NMR images.

京都大学医学部脳神経外科学教室　安里令人

59

Radiosensitizing Effect of Misonidazole in Radiotherapy for Intracranial Tumors

SHIN-ICHI OTSUKA

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Arch Jpn Chir **51**: 892～906, 1982.

The radiosensitizing effect of misonidazole was studied experimentally and clinically. Satisfactory radiosensitizing effect was observed in an experimental system using intracranially transplanted 203-glioma in C57BL mice. Then misonidazole was given orally to 27 patients with brain tumors as a clinical trial. In the next step, local administration of misonidazole pellet was studied in order to increase the intratumoral concentration of misonidazole. Constant release of misonidazole from the pellet was observed in both in vitro and in vivo experiments. As a clinical application of misonidazole pellet, 3 patients with brain tumors have been treated by local administration of misonidazole pellet into the tumor bed as an adjunct to radiotherapy.

京都大学医学部脳神経外科学教室　大塚信一

60

Experimental Studies on the Effect of Brain Stem Function on the Cerebral Arterial Responsibility by means of Auditory Brain Stem Response and Ultrasonic Doppler Flowmeter in Dogs

YOSHIHIRO TAKEBE

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Arch Jpn Chir **51**: 907～922, 1982.

The role of brain stem function in the regulation of cerebral blood flow was studied in anesthetized and immobilized dogs. Cerebral cortical blood flow was measured by an ultrasonic Doppler venous outflow method, and auditory brain stem evoked response was recorded epidurally to monitor brain stem function. Our data suggest that cerebral cortical circulation is controlled by the brain stem function.

京都大学医学部脳神経外科学教室　武部吉博

61

Role of Blood Flow in the Development of Gastric Mucosal Injury Associated with Various Diseases
III. Changes of Gastric Mucosal Blood Flow in Pancreatic Diseases

TADAO MANABE

The 1st Department of Surgery, Faculty of Medicine, Kyoto University, Sakyo-ku, Kyoto, Japan.

Arch Jpn Chir **51**: 923～931, 1982.

The mechanism of development of gastric mucosal injury associated with chronic and acute pancreatitis was studied from a hemodynamic point of view by a radioactive microsphere technique. In the short-term (1 week) total PDL group, longterm (2 months) 70% PDL group and long-term total PDL group, blood flow in the corpus of the stomach was significantly increased and that in the antrum decreased. In the acute pancreatitis group, 6 hours after infusion of autologous bile into the pancreatic duct, a marked decrease of blood flow was observed in the corpus of gastric mucosa.

京都大学医学部外科学教室第1講座　渡辺忠夫

62

Studies on Apinal Evoked Potentials in Crevical Spondylotic Myelopathy
—Using both Segmental and Conductive SEP—

HIRONOBU YAMASAKI

Department of Orthopedic Surgery, Yamaguchi University School of Medicine (Director: Prof. Dr. SUSUMU HATTORI) Ube, Yamaguchi, Japan.

Arch Jpn Chir **51**: 932～944, 1982.

Spinal evoked potentials (SEP) were measured in 47 patients with cervical spondylotic myelopathy. Both segmental SEP and ascending conductive SEP were measured in each intervertebral levels of 20 patients. In the type I, segmental SEP showed abnormalities and ascending conductive SEP were abnormal.

In the type II and III, segmental SEP almost showed abnormalities and ascending conductive SEP were abnormal.

SEP is a good method to know the function of the spinal cord.

山口大学医学部整形外科学教室　山崎博信

63

Experimental Study on Enlargement of the Spinal Canal of the Cervical Spine
—With Special Reference to Post-operative Scar Tissue Formation—

AKIHIRO NONAKA

Department of Orthopaedic Surgery, Yamaguchi University School of Medicine (Director: Prof. Dr. SUSUMU HATTORI) Ube, Yamaguchi, Japan.

Arch Jpn Chir **51**: 945～960, 1982.

An histological observation was performed experimentally to clarify the transition of post-operative scar tissue after enlargement of the cervical spinal canal. In the group of enlargement of the canal, scar tissue was invading into the spinal canal through the defect, however, and minimized gradually after three weeks.

New bone formation was recognized at the cut edges and dorsal side of the laminae. These findings were nearly same as those in the group of one-third laminectomy.

On the basis of this experimental study, enlargement of the spinal canal is thought to be a method of protecting the spinal cord from the secondary compression due to the scar tissue formation and also maintaining the stability of the spine as well as obtaining sufficient posterior decompression.

山口大学医学部整形外科学教室　野中昭宏

64

A Clinical Study of Ender's Nailings in Pertrochanteric Fractures

SUMIDA, MIKIO

Department of Orthopedic Surgery Osakafu Saiseikai Nakatsu Hospital, Osaka.

Arch Jpn Chir **51**: 961～975, 1982.

Since September in 1974, we have used Ender's nailings in the treatment of pertrochanteric fractures. Up to 1981, we treated 112 cases.

A retrospective study on this method showed good results with the following advantages: very low infection rate (0%), low mortality (2.7%), minimal damage to elderly patients and better mechanical stability. There is earlier mobilization without any nail failures.

We mentioned some technical considerations concerning the causes of knee complaints and backing-out of the nails.

大阪済生会中津病院整形外科　住田幹郎

65

Radiographic and Clinical Studies of the Entire Spinal Canal Stenosis

KAZUHIRO SAKAI

Department of Orthopaedic Surgery, Yamaguchi University School of Medicine (Director: Prof. Dr. SUSUMU HATTORI)

Arch Jpn Chir **51**: 976～994, 1982.

In the cases of disorders of spinal cord or cauda equina compression, sagittal diameter of the entire spinal canal tends to be narrower than that in normals. Therefore, the entire spinal canal stenosis is regarded as the basis of the disorders.

Then, we proscribe the severe standard ($C_5 \leqq 13$ mm, $T_{11} \leqq 12$ mm, $L_4 \leqq 15$ mm) and the mild standard ($C_5 \leqq 14$ mm, $T_{11} \leqq 13$ mm, $L_4 \leqq 17$ mm) for the entire spinal canal stenosis. The film-focus distance is 1.5 m at C_5, 1 m at T_{11} and L_4.

Clinical characteristics in the entire spinal canal stenosis are

1) various neurological deficits,
2) combined myelographic filling defects in other portions,
3) urinary-fecal disturbance and
4) poor recovery after treatment, although they are not specific.

山口大学医学部整形外科学教室　酒井和裕

66

Long-term Follow-up Results of Cervical Spondylotic Myelopathy —More Than 5 Years Post-operatively—

KOZOH SUNGAO

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Arch Jpn Chir **51**: 995～1024, 1982.

Ninety-one cases were able to be followed up for more than 5 years.

Results at the time of final follow-up were excellent in 57%, good in 28%, fair in 9%, unchanged in 3% and worsened in 3%.

Long-term results were influenced by the factors of the age, duration of the history, results at the time of discharge, spinal canal stenosis and operative methods.

Results were deteriorated in 19% cases after the time of discharge up to the time of follow-up.

The deterioration tended to occur nearly 3-7 years after surgery and two cases were submitted for re-operation.

山口大学医学部整形外科学教室　砂金光威

67

Intracranial Tuberculoma without Evidence of Systemic Tuberculosis

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Arch Jpn Chir **51**: 1025～1031, 1982.

A case of intracranial tuberculoma without evidence of extracranial tuberculosis was reported. CT showed an isodensity mass with perifocal edema in the left parietooccipital region. There was a small calcification in the periphery of the mass. Variability of CT appearance was noted in reviewing the literature, probably due to the difference in clinical stage. Diagnostic difficulty in differentiation from other brain tumors still remains, especially in cases without evidence of history of tuberculosis.

京都大学医学部脳神経外科　石川正恒，半田　肇
高知医科大学脳神経外科　森　惟明

68

Extravasation from an Aneurysm during Angiography Report of a Case with Survival

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Department of Neurosurgery, Shiga University of Medical Science, Seta, Ohtsu, Shiga, Japan.

Arch Jpn Chir **51**: 1032～1039, 1982.

A case with the extravasation from aneurysmal rupture during angiography is presented, and the available literature on this serious complication is reviewed. Two groups, the one in which the patients expired and the other in which the patients survived, are compared, and the possible prognostic factors are analyzed.

滋賀医科大学脳神経外科　須田金弥，佐藤　学，松田昌之，半田譲二

69

Dural Arteriovenous Malformation in the Anterior Cranial Fossa: Report of a Case

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Department of Neurosurgery, Shiga University of Medical Science, Seta, Ohtsu, Shiga, Japan.

Arch Jpn Chir **51**: 1040～1046, 1982.

A patient with a dural arteriovenous malformation involving the base of the anterior cranial fossa bilaterally was reported. Initial clinical symptoms were severe headaches of acute onset and diplopia. An intracranial hematoma was evacuated and a dural arteriovenous malformation was totally removed. The literature on the dural arteriovenous malformation of the anterior cranial fossa was reviewed. The cause of oculomotor palsy remains obscure.

滋賀医科大学脳神経外科　木戸岡実，中洲　敏，中洲庸子，半田譲二

70

Occlusion of Heubner's Artery —CT and Clinical Findings—

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Department of Neurosurgery, Shiga University of Medical Science, Seta, Ohtsu, Shiga, Japan.

Arch Jpn Chir **51**: 1047～1050, 1982.

A case of occlusion of the left Heubner's artery in a right-handed, 51-year-old man is reported. Cardinal clinical features were transient right hemiparesis and mental disturbance, especially intellectual defect. Low density areas were found at CT in the globus pallidus, putamen, anterior limb of the internal capsule and a part of the caudate nucleus. It is well known that the occlusion of the Heubner's artery causes transient motor paresis of upper extremity on the contralaterl side. However, in the case where the Heubner's artery is remarkably well developed when compared with the medial striate arteries as was the case in this patient, it should be noted that the occlusion of the Heubner's artery may well causes grave mental disturbance, in addition.

滋賀医科大学脳神経外科　佐藤　学，木戸岡実

71

A Case of Meckel's Diverticulum Diagnosed by $^{99m}TcO_4$ Abdminal Scanning

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Department of Surgery, Obama Municipal Hospital

TAKESHI MIYANOMAE

Department of Pediatrics, Obama Municipal Hospital

Arch Jpn Chir **51**: 1051～1055, 1982.

Meckel's diverticulum is a common cause of gastrointestinal tract haemorrhage in children, but the preoperative diagnosis has been thought to be difficult. Recently, the visualization with ^{99m}Tc-pertechnetate is reported to be most useful to define this lesion. We have encountered one case of Meckel's diverticulum diagnosed by $^{99m}TcO_4$ abdominal scanning, which shows the area of abnormal uptake, At operation Meckel's diverticulum was found and this was removed by resection. Histological findings reveals ectopic gastric mucosa and an ulcer at the base of Meckel's diverticulum.

公立小浜病院外科　樋口章夫，服部泰章，吉富錠二，田辺賀啓
公立小浜病院小児科　宮野前健